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EXAMINER	
WILLIAMS, DON J	

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2878	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/690,237	KRANTZ ET AL.
	Examiner	Art Unit
	Don Williams	2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/20/2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 5-7, 9, 13, 15-18, 29-31, 36, and 41-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Richardson et al (6,377,739).

As to claim 1, Richardson et al disclose an optical sensor having a first linear array of sensors segments (1a) and a second linear array of sensor segments (1b) separated by a first nonactive gap having a first width (A); a first optical fiber (3a) having a first end oriented toward a field of view and a second end oriented toward a sensor segment (1a) of first linear array of sensor segments (1a); and a second optical fiber (3b) having a first end oriented toward field of view and located a first distance (a), less than first width (A), from a first end of first optical fiber (3a) and a second end oriented toward a sensor segment (1b) of second linear array of sensor segments (1b), thereby enhancing optical congruence of first linear array (1a) and second linear array (1b) in relation to each other, (see fig. 2, column 3, lines 39-60, fig. 3, column 4, lines 27-55).

As to claim 2, Richardson et al disclose an optical sensor has a third linear array of sensor segments (1c) separated from second linear array of sensor segments (1b) by a nonactive gap having a second width, optical sensor apparatus further

comprising, a third optical fiber (3c) having a first end oriented toward field of view and located a third distance, less than second width, from a first end of second optical fiber (3b) and a second end oriented toward a sensor segment (1c) of third linear array of sensor segments (1c), (see fig. 2, column 3, lines 39-60, fig. 3, column 4, lines 27-55).

As to claim 5, Richardson et al disclose first ends of first (3a) and second (3b) optical fibers are arranged in a single column, (see fig. 2, column 3, lines 39-66).

As to claim 6, Richardson et al disclose optical fibers (3a), (3b) and (3c) are mounted with block structures (4), (5), and (6), (see fig. 2, column 3, lines 39-66)

As to claim 7, Richardson et al disclose field of view is along a plane intersecting first end of first optical fiber (3a) and first end of second optical fiber (3b), (see fig. 2, column 3, lines 39-66).

As to claim 9, Richardson et al disclose optical sensor is a tri-linear sensor having three sensor elements (1a), (1b) and (1c), (see fig. 2, column 3, lines 39-66).

As to claim 13, Richardson et al disclose second end of first optical fiber (3a) is mounted to sensor segment of linear array of sensor segments (1a) and second end of second optical fiber (1b) is mounted to sensor segment of second linear array of sensor segments (1b), (see fig. 2, column 3, lines 39-65).

As to claim 15, Richardson et al disclose a tri-linear optical sensor having a first linear sensor element (1a), and a second linear sensor element (1b) separated by a first nonactive gap having a first width (A) and a third linear sensor element (1c) separated from second linear sensor element (1b) by a second nonactive gap having a second width; a first optical fiber (3a) having a first end oriented toward a field of view and a

second end oriented toward a sensor segment of first linear sensor element (1a); a second optical fiber (1b) having a first end oriented toward a field of view and located a first distance (a), less than first width (A), from first end of first optical fiber (3a) and a second end oriented toward a sensor segment of second linear sensor element (1b); a third optical fiber (1c) having a first end oriented toward a field of view and located a third distance (d), less than second width, from a first end of second optical fiber (3b) and a second end oriented toward a sensor segment of third linear sensor element (1c), (see fig. 2, column 3, lines 39-67).

As to claim 16, Richardson et al disclose first optical fiber (3a) includes a plurality of first optical fibers (3a), and a second optical fibers (3b) includes a plurality of second optical fibers (3b) and third optical fibers (3c) includes a plurality of third optical fibers (3c), (see column 2, lines 60-67, fig. 2, column 3, lines 39-66).

As to claim 17, Richardson et al disclose first ends of first (3a), second (3b) and (3c) optical fibers are arranged in a single column, (see column 2, lines 60-67, fig. 2, column 3, lines 39-66).

As to claim 18, Richardson et al disclose a second end of first optical fiber (3a) is mounted to sensor segment of first linear sensor element (1a), a second end of second optical fiber (3b) is mounted to sensor segment of second linear sensor element (1b) and a second end of third optical fiber (3c) is mounted to sensor segment of third linear sensor element (1c), (see fig. 2, column 3, lines 39-66).

As to claim 29, Richardson et al disclose a first optical fiber (3a), and a second optical fiber (3b) mounted to each other such that a first end of first optical fiber (3a) and

a first end of second optical fiber (3b) are oriented toward a field of view; and a first spacer (4) mounted between a second end of first optical fiber (3a) and a second end of second optical fiber (3b) to locate a second end of first optical fiber (3a) and a second end of second optical fiber (3b) further apart than a first end of first optical fiber (3a) and a first end of second optical fiber (3b) and to correspond to elements (1a), (1b), and (1c) of an optical sensor, (see fig. 2, column 3, lines 39-67).

As to claim 30, Richardson et al disclose a second spacer (5); and a third optical fiber (3a) having a first end oriented toward field of view and a second end located such that a second end of third optical fiber (3c) and a second end of second optical fiber (3b) are further apart than a first end of third optical fiber (3c) and a first end of second optical fiber (3b) and to correspond to elements (1a), (1b) and (1c) of an optical sensor; wherein optical sensor is a tri-linear optical sensor, (see fig. 2, column 3, lines 39-67).

As to claim 31, Richardson et al disclose first ends of first (3a), second (3b) and third (3c) optical fibers are arranged in a single column, (see fig. 2, column 3, lines 39-67).

As to claim 36, Richardson et al disclose an optical sensor having a first linear sensor element (1a), and a second linear sensor element (1b) separated by a first nonactive gap having a first width (A) and a third linear sensor element (1c) separated from second linear sensor element (1b) by a second inherent nonactive gap having a second width; orienting a first end of first optical fiber (3a) toward a field of view; orienting a second end of first optical fiber (3a) toward first linear sensor element (1a); locating a first end of a second optical fiber (3b) a first distance (a), less than first width

(A), from a first end of first optical fiber (3a) and oriented toward field of view; orienting a second end of second optical fiber (3b) toward second linear sensor element (1b); locating an first end of a third optical fiber (3c) a third distance (d), less than a second width, from a first end of second optical fiber (3b) and oriented toward field of view; orienting a second end of third optical fiber (3c) toward third linear sensor element (1c); wherein optical congruence of first linear sensor (1a), second linear sensor (1b) and third linear sensor (1c) are enhanced to relation to each other, (see fig. 2, column 3, lines 39-66).

As to claim 41, Richardson et al disclose a second end of first optical fiber (3a) is mounted to first linear sensor element (1a), a second end of second optical fiber (3b) is mounted to second linear sensor element (1b) and a second end of third optical fiber (3c) is mounted to third linear sensor element (1c), (see fig. 2, column 3, lines 39-66).

As to claim 42, Richardson et al disclose means (3a), (3b), and (3c) for obtaining information from a field of view; means (3a), (3b), and (3c) for orienting optical information to at least two linear sensor elements (1a), (1b) of at least one optical sensor (1a) so as to enhance an optical congruence capability of optical sensors (1a), (1b), and (1c), (see fig. 2, column 3, lines 39-66).

As to claim 43, Richardson et al disclose means (4), (5), and (6) for positioning means (3a), (3b) and (3c) for obtaining in relation to optical sensor, (see fig. 2, column 3, lines 39-66).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 8, 10-12, 14, 32, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richardson et al in view of Gordon et al (5,061,036).

As to claim 3, Richardson et al disclose sensor segments. Richardson et al fail to disclose first, second, and third color filters. Gordon et al disclose first, second, and third color filters. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include first color filter (R), second color filter (G), and third color filter (B) corresponding to each dedicated sensor segment (56), (57), and (58) as disclosed by Gordon et al to improve the pixel image quality, (see fig. 4, column 3, lines 22-34).

As to claim 8, Richardson et al fail to teach a linear sensor. Gordon et al teach a column of sensors in photosensor array. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include a column of sensors (50), (51), (52) and (53) in the photosensor array as disclosed by Gordon et al to improve the transmitted image quality, (see fig. 4, column 3, lines 22-34).

As to claim 10, Richardson et al fail to teach one matrix sensor. Gordon et al teach sensors (56), (57) and (58) corresponding to columns (30), (31), and (32) in the

sensor array. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include sensors (56), (57) and (58) corresponding to columns (30), (31), and (32) in the sensor array as disclosed by Gordon et al to improve signal response of the sensors through dedicated fiber optics in order to enhance pixel quality images, (see fig. 4, column 3, lines 22-34).

As to claim 11, Richardson et al fail to teach linear array formed on a matrix sensor. Gordon et al teach sensor array corresponding to columns (30), (31) and (32). It would have been obvious for one ordinary skill in the art to modify Richardson et al to include sensor array (56), (57), and (58) as disclosed by Gordon et al to improve signal response of the sensors through dedicated fiber optics in order to enhance pixel quality images, (see fig. 4, column 3, lines 22-34).

As to claim 12, Richardson et al fail to teach three linear arrays formed on a matrix sensor. Gordon et al teach sensor array corresponding to columns (30), (31), and (32). It would have been obvious for one ordinary skill in the art to include sensor array (56), (57) and (58) corresponding to columns (30), (31), and, (32) as disclosed by Gordon et al to improve signal response of the sensors through dedicated fiber optics in order to enhance pixel quality images, (see fig. 4, column 3, lines 22-34).

As to claim 14, Richardson et al teach a field of view, lens, first optical fiber and second optical fiber. Richardson et al fail to teach lens between field of view. Gordon et al teach lens between field of view. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include lens between field of view as disclosed by Gordon et al to increase the response signal from the sensors in order to improve the

pixel quality by magnifying the pixel image, (see fig. 1, column 2, lines 36-65, column 3, lines 11-21).

As to claim 32, Richardson et al disclose optical fibers and optical sensors. Richardson et al fail to disclose color filters. Gordon et al disclose color filters. It would have been obvious for one ordinary skill in the art to include color filters (R), (G), and (B) as disclose by Gordon et al to improve the illumination intensity corresponding to each optical sensor (56), (57), and (58) to produce a clear and precise pixel image, (see fig. 4, column 3, lines 22-34).

As to claim 37, Richardson et al disclose a plurality of optical fibers. Richardson et al fail to disclose arrays of optical sensor and color filters. Gordon et al disclose sensor of array and color filters. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include sensor of array (56), (57), (58) and corresponding color filters (R), (G), and (B) as disclosed by Gordon et al to improve the signal response of the array of sensors through dedicated optical fibers in order to enhance pixel quality image, (see fig. 1, fig. 4, column 3, lines 1-34).

Claims 4, 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richardson et al in view of Hegg et al (4,904,049).

As to claim 4, Richardson et al fail to teach a fiber optic faceplate. Hegg et al teach a fiber optic faceplate (46), (see fig. 3). It would have been obvious for one ordinary skill in the art to modify Richardson et al to include a faceplate (46) as disclose by Hegg et al to accommodate first ends of first and second optical fibers improving the

precise alignment of the bundle optical fibers, (see fig. 3, column 2, lines 62-68, column 3, lines 1-16).

As to claim 19, Richardson et al disclose a first optical fiber (3a), second optical fiber (3b), plurality of optical fibers, first distance (a), nonactive gap (A), first and second end. Richardson et al fail to teach first fiber optic faceplate and second fiber optic faceplate. Hegg et al teach fiber optic faceplate and a second flat surface. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include fiber optic faceplate and a second flat surface as disclosed by Hegg et al to separate the first and second plurality of optical fibers along a planar surface to improve the signal response from the corresponding sensor elements in order to enhance image pixel quality through illuminated light projected through the plurality of optical fibers, (see claim 1, claim 2, column 1, lines 53-68, fig. 3, column 2, lines 62-68, column 3, lines 1-16).

As to claim 20, Richardson et al disclose plurality of optical fibers includes a plurality of first optical fibers (3a) and a plurality of second optical fibers (3b), (see fig. 2, column 3, lines 39-65).

As to claim 21, Richardson et al disclose a third optical fiber, optical fiber first end, optical fiber second end, and a distance less than an inherent nonactive gap. Richardson et al fail to teach first and second fiber optic faceplates. Hegg et al teach fiber optic faceplate and a second flat surface. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include fiber optic faceplate (46) and a second flat surface as disclosed by Hegg et al to accommodate first end and

second end of first and second optical fibers improving the precise alignment of the bundle of optical fibers, (see claim 1, claim 2, fig. 3, column 2, lines 62-68, column 3, lines 1-16).

As to claim 22, Richardson et al disclose first ends of first (3a), second (3b), and (3c) optical fibers are arranged in a single column, (see column 2, lines 60-67, fig. 2, column 3, lines 39-65).

As to claim 23, Richardson et al disclose first ends, second ends, first optical fiber (3a), second optical fibers (3b), and optical fiber mounting blocks (4), (5) and (6), (see fig. 2). Richardson et al fail to disclose first and second fiber optic faceplate. Hegg et al disclose fiber optic faceplate and second flat surface. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include fiber optic faceplate (46) and second flat surface as disclosed by Hegg et al to accommodate first and second ends of optical fibers improving the precise alignment of the bundle of optical fibers, (see fig. 3, column 2, lines 62-68, column 3, lies 1-16).

As to claim 24, Richardson et al disclose optical sensor (1a), (1b), and (1c) mounted on spacing fixtures (4), (5), and (6), (see fig. 2). Richardson et al fail to teach second optic faceplate. Hegg et al teach second flat surface. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include second flat surface as disclose by Hegg et al to improve the mounting of the sensor elements and defining each sensor element with its corresponding optical fibers, (see fig. 3, column 2, lines 62-68, column 3, lines 1-16).

Claims 25-28, 33-35, 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richardson et al in view of Hegg et al and further in view of Gordon et al (5,061,036).

As to claim 25, the modified Richardson et al fail to disclose a tri-linear CCD image sensor. Gordon et al disclose a CCD. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include a CCD as disclosed by Gordon et al to improve the signal to noise ratio between the sensors and corresponding optical fibers allowing a clear and precise image to be detected, (see fig. 1, column 2, lines 36-68).

As to claim 26, the modified Richardson et al fail to teach one matrix sensor. Gordon et al teach sensors (56), (57) and (58) corresponding to columns (30), (31), and (32) in the sensor array. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include sensors (56), (57) and (58) corresponding to columns (30), (31), and (32) in the sensor array as disclosed by Gordon et al to improve signal response of the sensors through dedicated fiber optics in order to enhance pixel quality images, (see fig. 4, column 3, lines 22-34).

As to claim 27, the modified Richardson et al fail to teach linear array formed on a matrix sensor. Gordon et al teach sensor array corresponding to columns (30), (31) and (32). It would have been obvious for one ordinary skill in the art to modify Richardson et al to include sensor array (56), (57), and (58) as disclosed by Gordon et

al to improve signal response of the sensors through dedicated fiber optics in order to enhance pixel quality images, (see fig. 4, column 3, lines 22-34).

As to claim 28, the modified Richardson et al disclose a plurality of optical fibers. Richardson et al fail to disclose arrays of optical sensor and color filters. Gordon et al disclose sensor of array and color filters. It would have been for one ordinary skill in the art to modify Richardson et al to include sensor of array (56), (57), (58) and corresponding color filters (R), (G), and (B) as disclosed by Gordon et al to improve the signal response of the array of sensors through dedicated optical fibers in order to enhance pixel quality image, (see fig. 1, fig. 4, column 3, lines 1-34).

As to claim 33, the modified Richardson et al fail to disclose a tri-linear CCD image sensor. Gordon et al disclose a CCD. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include a CCD as disclosed by Gordon et al to improve the signal to noise ratio between the sensors and corresponding optical fibers allowing a clear and precise image to be detected, (see fig. 1; column 2, lines 36-68).

As to claim 34, the modified Richardson et al fail to teach one matrix sensor. Gordon et al teach sensors (56), (57) and (58) corresponding to columns (30), (31), and (32) in the sensor array. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include sensors (56), (57) and (58) corresponding to columns (30), (31), and (32) in the sensor array as disclosed by Gordon et al to improve signal response of the sensors through dedicated fiber optics in order to enhance pixel quality images, (see fig. 4, column 3, lines 22-34).

As to claim 35, the modified Richardson et al fail to teach linear array formed on a matrix sensor. Gordon et al teach sensor array corresponding to columns (30), (31) and (32). It would have been obvious for one ordinary skill in the art to modify Richardson et al to include sensor array (56), (57), and (58) as disclosed by Gordon et al to improve signal response of the sensors through dedicated fiber optics in order to enhance pixel quality images, (see fig. 4, column 3, lines 22-34).

As to claim 38, the modified Richardson et al fail to disclose a tri-linear CCD image sensor. Gordon et al disclose a CCD. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include a CCD as disclosed by Gordon et al to improve the signal to noise ratio between the sensors and corresponding optical fibers allowing a clear and precise image to be detected, (see fig. 1, column 2, lines 36-68).

As to claim 39, the modified Richardson et al fail to teach one matrix sensor. Gordon et al teach sensors (56), (57) and (58) corresponding to columns (30), (31), and (32) in the sensor array. It would have been obvious for one ordinary skill in the art to modify Richardson et al to include sensors (56), (57) and (58) corresponding to columns (30), (31), and (32) in the sensor array as disclosed by Gordon et al to improve signal response of the sensors through dedicated fiber optics in order to enhance pixel quality images, (see fig. 1, fig. 4, column 3, lines 11-34).

As to claim 40, the modified Richardson et al fail to teach linear array formed on a matrix sensor. Gordon et al teach sensor array corresponding to columns (30), (31) and (32). It would have been obvious for one ordinary skill in the art to modify

Richardson et al to include sensor array (56), (57), and (58) as disclosed by Gordon et al to improve signal response of the sensors through dedicated fiber optics in order to enhance pixel quality images, (see fig. 4, column 3, lines 22-34).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Don Williams whose telephone number is 571-272-8538. The examiner can normally be reached on 8:30a.m. to 5:30a.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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